We all wonder about ourselves and how we would react to combat. Further, we can hardly doubt that the vicarious experience of reading cannot substitute for the real thing. But we cannot start wars to explore our behavior in them; thus, aspiring leaders must supplement their experience with professional study. Readers who want entertaining but informative reading during temporary duty should carry along *Men at War*. If they desire professional enhancement, then *The Face of Battle* is a better choice.

Dr. David R. Mets
Niceville, Florida

Men at War: A Soldier's-Eye View of the Most Important Battles in History edited by Bill Fawcett. Berkley Caliber (http://us.penguingroup.com), 375 Hudson Street, New York, New York 10014-3657, 2009, 336 pages, $15.00 (softcover), ISBN 978-0-425-23013-8.

Men at War is a readable work that will provide the air-warrior with an evening or two of entertaining reading relevant to the military life. As usual, the advertising hype overstates the case, but readers may learn something about the soldier's life from it. Not really a first-person account, the narrative is filtered through the minds of the professional writers of the several chapters. Many are novelists, all write well, and some are better informed on military history than others. The chapters run from Roman times to Vietnam. The one on the Civil War Soldier is the best of the lot. Others include Roman soldiers of antiquity; battling knights of the Third Crusade; a French artilleryman at Waterloo; Soldiers who fought at Gettysburg; a rifleman in the last American battle of World War II; the invasion of France; a Marine in Korea; and a Navy SEAL in Vietnam. Sometimes fiction represents the truth better than formal history, but it is hard to tell. In this work, despite the historical soundness of the story, the reader has difficulty distinguishing fiction from fact. *Men at War* is not as unique as the hype claims.

John Keegan's *The Face of Battle*, one of the classics in this category, covers the Battles of Agincourt and the Somme, as well as one also described in *Men at War*—Waterloo. Possessing top-of-the-line credentials as a military historian, Keegan taught the subject at the British military academy at Sandhurst for many years. His prose is as readable as that in *Men at War*.

Final Countdown: NASA and the End of the Space Shuttle Program by Pat Duggins. University Press of Florida (http://www.upf.com), 15 Northwest 15th Street, Gainesville, Florida 32611-2079, 2007, 264 pages, $24.95 (hardcover), ISBN 978-0-8130-3146-0; 2009, $19.95 (softcover), ISBN 978-0-8130-3384-6.

The space shuttle is an intriguing craft. Part spaceship, part glider, sometimes boxcar or bus, it is a wondrous vehicle. Originally billed as the new vehicle to carry Air Force satellites, the shuttle came into its own in 1993 by transporting segments of the International Space Station as that program took off. The shuttle's life is complex and multifaceted, fraught with lofty successes and equally grim tragedies.

Pat Duggins, National Public Radio's resident space expert since 1996, does yeoman's work in chronicling the story of the space shuttle. Well suited to write this book, he has covered a multitude of shuttle missions, two of its tragedies, and the twists and turns of the spacecraft's career from inception to scheduled retirement.

An easy read, *Final Countdown* does not serve up dry history or include facts or dates without reason. This book is packed with insider information about the space shuttle, the National Aeronautics and Space Administration's (NASA) space program in general, and many of the key figures in the shuttle's history.

The first chapter, "The Future," splendidly lays out a synopsis of the space program from Mr. Carl Walz's announcement in 2005 about the future of the moon and Mars programs to development of the Crew Exploration Vehicle (CEV). Duggins weaves in pieces of Apollo and space shuttle program history and lessons learned,

aptly applying these in the context of the upcoming CEV and its missions.

The author sets the stage for discussion of the shuttle's birth and development as well as NASA's plans for the CEV after the shuttle program ends. He cites a press meeting in February 2006, during which a reporter asked Astronaut Steve Lindsey and his crew if any of them were thinking of training for a moon mission. Evidently caught off guard, after exchanging looks with his crew, Lindsey responded, "I think we're too old" (p. 27). Duggins repeatedly shows that as NASA changed missions and vehicles, it also traded in its old astronauts for new ones. The pattern is already set for the postshuttle era.

He also launches into the troubled history of the space shuttle program, doing so in an engaging manner by coupling personal observation with stories recounted by many astronauts and shuttle personnel. For instance, Duggins includes a lighthearted exchange from 1959 between soon-to-be-hired NASA (eventually shuttle) engineer Sam Beddingfield and astronaut Gus Grissom. Beddingfield confesses to Grissom that he wants a job at NASA; Grissom says that NASA has jobs. Beddingfield further admits that he doesn't know anything about rockets. "That's OK," Grissom responds, "neither does NASA" (p. 45).

To his credit, the author does what he says he would do: tell the story of NASA and the end of the space shuttle program. However, it seems to me that Duggins spends too much time on the shuttle and too little on what might follow. The book left me wanting more of the story. I felt that Duggins missed a golden opportunity to explore where few have explored so far—for instance, NASA's plans beyond the CEV and the prospect of landing people on Mars. Despite this shortcoming, I recommend *Final Countdown* as a valuable insider's view of the space shuttle program.

Maj Paul Niesen, USAF, Retired
Scott AFB, Illinois

War and the Engineers: The Primacy of Politics over Technology by Keir A. Lieber. Cornell University Press (http://www.cornellpress.cornell.edu/), Box 6525, 750 Cascadilla Street, Ithaca, New York 14851-6525, 2005, 256 pages, $57.95 (hardcover), ISBN 978-0-8014-4383-1; 2008, 256 pages, $21.00 (softcover), ISBN 978-0-8014-7487-3.

Keir Lieber's sophisticated critique of technology as a determinant of national security policy is worth noting for several reasons. His monograph aims to unhinge a laboriously constructed, fiercely guarded citadel of social science wisdom: the idea that new technology, most importantly nuclear weapons technology, can alter the fundamentals of political competition. Lieber mostly succeeds in this endeavor, but, as he implies in the conclusion, his achievement leaves those concerned with international relations and defense policy with much work to do.

Lieber's demolition strategy forces so-called offense-defense theory into social science requirements espoused by leading methodologists, so it can be rigorously tested against the historical record. He identifies the core of the theory with military technologies that dramatically increase either the mobility or firepower of land-based forces. Expansion of railroad networks during the late nineteenth century increased the quantities of men and materiel that could be moved, and reduced the time for mobilizing armies. Incorporation of the tank into combined-arms operations freed fighting from the static trench warfare of World War I. Railroads and tanks, then, are candidates for offensive technologies. By contrast, the small-arms and artillery revolution of the late-nineteenth century and the nuclear revolution of the twentieth century are evaluated as harbingers for defensive dominance.

In case after case, Lieber finds that new mobility at the tactical or operational levels can be harnessed at the strategic level to serve defensive as well as offensive political goals. On the other hand, firepower, up to and including nuclear warheads packing the explosive punch of over one million tons of TNT, can be overcome—using duck-and-cover tactics in the conventional realm or brinkmanship in the nuclear era. In sum, Lieber finds little evidence that technology, in and of itself, ever exacerbated or ameliorated international competition. What matters is what mattered to Machiavelli—opportunities for gains in influence afforded by the international balance of power.

Unfortunately for the purist version of realism that *War and the Engineers* espouses and fortunately, perhaps, for international politics, readers may question whether national-power comparisons confound scholars as much as net assessments for offensive advantage. When analysts attempt to measure the systemwide distribution of capabilities or break this down into smaller dyadic comparisons, they find that power,

like advantage, involves other variables besides numbers of troops or classes of equipment. As Raymond Aron persuasively argued during America's Cold War trials with irregular warfare, the balance of power for a given conflict also depends on skill, geography, and domestic comity—in other words, the kinds of variables Lieber eschews as so much unscientific hand waving.

Lieber reserves his most devastating criticism for Stephen Van Evera's *Causes of War: Power and the Roots of Conflict* (Cornell University Press, 1999), an ode to defensive dominant technology as a means for warding off tragedy in great-power politics. Yet, Van Evera's argument is not engaged on its own terms. Lieber assiduously separates technology from organization and doctrine while Van Evera does not.

In justifying the spare approach, Lieber asks readers to consider how equipment variables are easier to measure compared to doctrine. Also, he argues, powerful militaries generally get it right: they rapidly optimize their use of acquired technologies to support offensive or defensive political objectives. Still, Adam Stulberg and Michael Salomone of the Georgia Institute of Technology analyze defense transformation as a complex, managerial challenge that some militaries address ahead of others. Their blow-by-blow account of German reorganization and experimentation across the interwar years in *Managing Defense Transformation* (Ashgate, 2007) contrasts sharply with Lieber's epiphanic debut for blitzkrieg in the May 1940 Battle of France.

In isolating equipment from doctrine, Lieber does demonstrate how little developments in pure technology alter the fundamentals of international competition. Those who favor arms control as a means of mitigating certain deadly incentives for aggression are obliged to push back against Lieber's thesis at least enough to show how variation in science and technology management drives increases in offensive military power as well as perceptions of its effectiveness. In this context, Van Evera's prodding to think holistically about technology—in terms of what happens under varying combinations of doctrine or geography and in terms of how certain weapon technologies sow seeds of overoptimism—has to be carefully reevaluated.

Today, the United States engages other militaries in a mixed world, featuring space-based targeting systems that might allow standoff platforms to pick apart another state's defenses with impunity, alongside the presence of robust nuclear arsenals capable of administering unbearable punishment to a would-be conqueror. For Lieber, few technical arrangements could soften fears of an opportunistic, space-supported strike or discourage aggression even after nuclear weapons entered the arena.

On the other hand, Lieber's critics will recall instances when the "president's explicit and public rejection of mutual assured destruction" (p. 147) succumbed to joint declarations averring that a nuclear war cannot be won and must never be fought. Beyond bans on equipment, exchanges of information as part of the negotiation and verification processes in arms control can buttress defense estimates and leaders' perceptions respecting the full costs of a first strike.

War and the Engineers speaks directly to military strategists and students of international politics. Within these audiences, modern skeptics of arms control will find systematic, historical support of their inclinations. For foreign policy and defense analysts who hold out hope, *War and the Engineers* provides the right kind of provocation. A less rarefied, more practical version of offense-defense theory may yet rescue deterrence policy. An improved version of offense-defense theory, however, will still confront Lieber's gauntlet: under what conditions, if any, can technology be engineered to preserve peace?

Dr. Damon Coletta
US Air Force Academy, Colorado

The Intelligence Wars: Lessons from Baghdad
by Steven K. O'Hern. Prometheus Books (http://www.prometheusbooks.com), 59 John Glenn Drive, Amherst, New York 14228-2197, 2008, 292 pages, $25.98 (hardcover), ISBN 978-1-59102-670-9.

The Intelligence Wars should have been a true-life spy adventure set in war-torn Baghdad, but author Steven K. O'Hern was not satisfied with recounting his time as leader of a human intelligence (HUMINT) unit tasked with hunting insurgents. When the book discusses HUMINT tradecraft and demonstrates such techniques via personal experiences or anecdotes, it is an engaging, often educational, read. Unfortunately, Colonel O'Hern, now retired, wastes too many pages either regurgitating "generational warfare" myths or railing against issues often better addressed in professional journals.

A career officer in the Air Force's Office of Special Investigations, the author subsequently assumed command of the Strategic Counterintelligence Directorate (SCID) of Multi-National Force–Iraq. His years as a special agent and the six months he spent in Baghdad in 2005 lend credibility to discussions of HUMINT, a traditionally Army-dominated field. But Colonel O'Hern's lack of experience with other intelligence disciplines stands in stark contrast to his HUMINT background. The author's consistent laments regarding an intelligence community focused excessively on technology, though possibly accurate, are not sufficiently substantiated in the book.

Chapters 5 and 6, about HUMINT operations, are certainly the most rewarding ones. Through a careful, comprehensible explanation of source selection and handling, Colonel O'Hern sets the stage for a number of interesting demonstrations of tradecraft in use. Sadly, many of his stories, truncated to two or three paragraphs, easily could have filled the remainder of the book and provided a much better opportunity for learning lessons developed by the author and his SCID team. Instead, these chapters serve only as a minor respite in what is otherwise a largely academic discussion about theories of the evolution of war and the US military's ill-preparedness to engage in "fourth-generation warfare."

Although Colonel O'Hern acknowledges the contributions of other intelligence disciplines and the importance of intelligence "cross-cue" only in passing, his insights into HUMINT offer excellent education to intelligence professionals throughout the community. Equally enlightening are his observations about the cultural and interpersonal dynamics of a divided Iraq. The author's recounting of visits to the Iraqi Ministry of the Interior, each floor occupied by different sectarian factions, or his trip to Kurdish-dominated regions that consider Iraq a foreign country is both informative and frustrating with regard to US goals for the region.

Chapter 3, "Fourth-Generation Warfare," and chapter 9, "The Next War," represent the low points of the book. Although Colonel O'Hern is intellectually honest enough to acknowledge the existence of criticisms of generational-warfare theory, he continues to cling to a concept likely to alienate his more studied audience. The greatest disappointment, however, is that these chapters contribute nothing to the book; indeed, their absence would not detract from important topics that should be its sole focus. A simple examination of insurgency would have proven sufficient for establishing the context of the author's experiences conducting HUMINT operations in Iraq. Furthermore, the opening fictional account of chapter 8 is insulting in its depiction of intelligence officers and, again, contributes nothing. Readers will find similar pettiness in the latter part of the chapter, which discusses analysts, although the treatment of analyst-handler fusion is valuable.

A lesser failing of the book, one that affects Colonel O'Hern's contributions to professional thought, concerns the inescapable difficulty of writing a "history" about a war in progress. Limiting the story to a chronicle of his experiences would have largely eliminated this predicament, but the emphasis on "fixing" the problems encountered in his six-month tour, four years before publication, only wastes ink. The author's recommendations for better integration of reservists and guardsmen with law-enforcement backgrounds into intelligence, and for the establishment of a single officer in charge of all intelligence operations in-theater are worth investigating. Unfortunately, many of his other concerns, particularly regarding the bureaucratic nature of the US military, the sharing of intelligence among agencies, and the pairing of analysts with operators have already been addressed in the years since Colonel O'Hern's tour of duty. Current solutions have not yet proved fully successful, but his recommendations are now outdated.

When he concentrates solely on HUMINT, the author does an excellent job of highlighting both its importance to counterinsurgencies and its weaknesses, such as a lack of precision and reliability. His "lessons learned" from Iraq regarding the use of analysts to feed guidance directly to handlers and their sources, the pitfalls of using contractors to support HUMINT operations, and the lack of actionable intelligence from the vast majority of "casual sources" could serve as important guides for intelligence personnel. Oddly, in chapter 7, which criticizes the existence of "stovepipes," Colonel O'Hern writes about the importance of protecting information from misuse by outside agencies, thus validating the rationale for such stovepipes. Aside from his own designated lessons, readers can learn more from his stories about the operations of SCID personnel.

An interesting read for anyone studying counterinsurgency operations in Iraq, *The Intelligence Wars* has value primarily to intelligence professionals. Appropriately, it concentrates on the Army's management of HUMINT, but most

members of the Air Force community will have little use for it.

Lt Col Stephen C. Price Jr., USAF
US European Command, Stuttgart,Germany

The U.S. Citizen-Soldier at War: A Retrospective Look and the Road Ahead edited by Malcolm Muir Jr. McCormick Foundation (in conjunction with Virginia Military Institute) (http://www.mccormickfoundation.org/), 205 North Michigan Avenue, Suite 4300, Chicago, Illinois 60601, 2008, 142 pages (softcover).

The U.S. Citizen-Soldier at War: A Retrospective Look and the Road Ahead examines issues with the All Volunteer Force and the current posture of the Guard and Reserve. This compilation of 12 papers, presented in October 2007 at the First Division Museum as part of the McCormick Tribune Conference Series, touches upon three broad themes for the All Volunteer Force—roles, manning, and future concerns—pointing out the need for and reliance on the Guard and Reserve. As Duncan reminds the reader, from Panama in 1989 to 11 September 2001 (9/11), the United States intervened with significant military force an average of once every 18 months (p. 70). Several of the contributors note that increased US military involvement has led to more reliance on the Guard and Reserve as part of the Total Force originally envisioned in 1970 by Secretary of Defense Melvin R. Laird. His concept of the Guard and Reserve as a strategic reserve has changed, particularly since 9/11, since the military depends more heavily upon those forces for operational missions. Pointing out that they were not created, funded, or organized as operational forces (p. 75), Wormuth points out that consistent use of the Guard and Reserve in this manner will require institutional changes.

Several of the authors' discussions of the capabilities offered by the Guard and Reserve give readers an idea of how much the active component and the country truly depend on these citizen-soldiers. Wormuth notes that part of the problem with the Total Force concept is that certain military capabilities such as civil affairs, medical expertise, and military police reside almost solely within the reserve component, forcing automatic mobilizations in support of active-component deployments. Vaughn affirms how much the nation depends on the Army National Guard, whose eight divisions and 28 brigade combat teams make up 38 percent of the Army's force structure and whose aviation assets comprise 43 percent of all Army aircraft (pp. 94–97). Yet, as Doubler observes, the Army National Guard struggles to match the active component in both equipment and manpower utilization as it contends with its traditional role of protecting the homeland while deploying overseas. The Air National Guard does not have a problem matching the active component. According to McKinley, the Guard had cultivated an operational capability and spirit through its "volunteer" process well before the end of the Cold War by deploying its refueling units in support of operational missions and assuming the interceptor mission for the continental United States. The increased requirements as a result of 9/11 have largely been transparent.

Nieberg, Williams, Millett, and the late Moskos raise the key theme of citizen-soldier manning, each addressing the equity-of-service argument and erosion of the citizen-soldier concept. A fraction of the population bears the burden of military service and sacrifice. Moreover, skewed economic and geographic demographics—reflecting overrepresentation of the poor and the South—continue to plague recruiting. Williams calls enlistees "economic conscripts," noting that recruiters use economic rather than patriotic incentives to attract them (p. 32). All four contributors consider this societal and economic misrepresentation a problem that needs fixing. However, none of them offers a realistic solution. Moskos, one of America's great military sociologists, proposes a military draft while Bell suggests that society needs to change its view of who should serve. In terms of utilization and resources, instituting a draft is economically unfeasible, and expecting society to change is unrealistic. Further, is this a problem that needs correcting? Nieberg notes how the Reserve Officer Training Corps has unintentionally integrated the officer corps with minorities and members from lower economic means, and Williams acknowledges that the All Volunteer Force is working better than expected (p. 32). Societal misrepresentation within the military has long been a problem and will continue as such until the option not to serve exists.

Military readers should pay attention to the concern expressed by several authors about the future force structure. Millett notes that the increased call-up of Reserve members has affected retention while Bell observes that citizen-soldiers cannot be expected to endure the sacrifices of the "long war" without greater support from the

population (p. 84). More importantly, Duckworth, Millett, and Williams ask how the military will continue to attract and retain members, especially now, in a time of extended conflict. This question leads Williams to wonder about the sustainability of the All Volunteer Force, given current circumstances. As *The U.S. Citizen-Soldier at War* illustrates, we must truly discern whether or not the All Volunteer Force is meeting the nation's defense needs. This book offers insight into some of the key challenges that policy makers will contend with as they forecast future manning and equipping requirements for the US military.

Lt Col Michael C. Veneri, USAF
US Air Force Academy, Colorado

America's Defense Meltdown: Pentagon Reform for President Obama and the New Congress edited by Winslow T. Wheeler. Stanford University Press (http://www.sup.org), 1450 Page Mill Road, Palo Alto, California 94304-1124, 2009, 272 pages, $19.95 (softcover), ISBN 978-0-80476-931-0.

In a speech of 21 April 2008 to the Air War College at Maxwell AFB, Alabama, Secretary of Defense Robert Gates implored his listeners to "become . . . forward-thinking officer[s] who [help] the Air Force adapt to a constantly changing strategic environment," offering Col John Boyd as an example of the kind of officer needed to lead our military to success in the twenty-first century ("Remarks to Air War College," Department of Defense, Office of the Assistant Secretary of Defense [Public Affairs], http://www.defense.gov/speeches/speech.aspx?speechid=1231). The notion of whether or not Secretary Gates's fondness for Boyd extends to respect for the ideas of his associates and modern-day acolytes will be tested in the months ahead as the Defense Department faces the budget realities of an economic downturn. A Center for Defense Information book, *America's Defense Meltdown* includes essays from Boyd's successors in the military-reform movement that chart fresh approaches to old defense issues. Many of the ideas detailed here will probably crumble under scrutiny; nonetheless, this short tract is worth reading for the sheer number and variety of innovative ideas it offers.

The book's 11 chapters adhere to Boyd's maxim regarding defense priorities: "people, ideas, hardware, in that order" (p. 19). The first chapter, written by Lt Col John Sayen, USMC, retired, cogently defends Boyd's priority principle, and the chapters that follow paint a portrait of a people-ideas-hardware US military. Airpower-minded readers will want to pay particular attention to chapters 7 and 8.

Col Robert Dilger, USAF, retired, and Pierre M. Sprey, who contributed chapter 7, "Reversing the Decay of American Air Power," examine airpower in twentieth-century conflicts, seeking to undermine Giulio Douhet's theory that strategic bombardment of enemy heartlands can win wars by itself (p. 129). They contest the claim that strategic bombardment played a central role in defeating Iraq in the first and second Gulf Wars and question the usefulness of airpower in a wide range of circumstances. They praise airpower only for close air support (CAS) missions, pointing to German Stukas and US P-38s, P-47s, and P-51s in World War II as examples of successful interdiction platforms. Dilger and Sprey contrast this success with the tremendous losses and limited results of Royal Air Force, US Army Air Forces, and German Luftwaffe strategic bombers (pp. 131–44). Similarly, they criticize the first Gulf War's strike campaign for utilizing the F-117 and applaud their own A-10 CAS efforts against fielded units of the Iraqi Army (pp. 149–52).

Based on this historical analysis, the authors envision a new procurement schedule of 4,000 CAS fighters; 2,500 forward air control aircraft; a reduced buy of 100 KC-X tankers; 1,000 dirt-strip airlifters akin to the C-27J; 1,100 austere air superiority fighters; and 200 F-35s—an outline rooted in a preference for large-number acquisitions, an aversion to high-tech airframes, and a belief in the supremacy of CAS over independent air operations. Dilger and Sprey seek to "procure only aircraft and weapons of the utmost austerity, stripped down to the only capabilities directly required by actual combat experience" (p. 159).

The premise for the authors' procurement outline emanates from faulty historical analysis filled with assertion and little documented support. Focusing particularly on the Gulf Wars, Dilger and Sprey question—without citation—the stealth capabilities of the F-117 and criticize the fighter-bomber for its small payload and low production numbers. Their analysis excoriates all stealth capabilities without discussing alternatives for penetrating contested airspace. Further-

more, they advocate the purchase of large numbers of airframes—claiming unimaginably low purchase prices—without discussing the resulting long-tail costs in personnel, ramp space, fuel, and maintenance. Emphasizing numbers of tails—rather than capabilities inherent in the fleet—ignores the lessons of the effects-based-operations construct. Despite the logic of their advocacy for an austere CAS airframe, particularly in the face of conflicts with nonstate actors, creating an entire Air Force around this singular mission set seems shortsighted.

In chapter 8, "Air Mobility for a New Administration," James P. Stevenson, author of *The Pentagon Paradox*, offers a primer on air-mobility terms and concepts, introducing readers to strategic and tactical airlift, air refueling, and special air-mobility operations. He makes a few key recommendations for the new administration, advocating "increased emphasis on aerial refueling, strategic sealift and specialized air, with a decreased emphasis on strategic and tactical airlift" (pp. 172–73). Recognizing the need for cost savings in mobility operations, Stevenson sees financial gains in cutting back on the C-5 and C-17 for strategic airlift of outsized cargo and supplementing these airframes with fast sealift and an expanded Civil Reserve Air Fleet. Similarly, he claims significant cost benefits by increasing the "building partner capacity" capability, which would emphasize utilization of allies' tactical airlift to decrease demand on the US fleet. Although brief, insufficiently sourced, and at times vague—at one point recommending that the Air Force "develop innovative options" (p. 176) to reduce the cost of strategic airlift—this chapter contains ideas worthy of serious examination.

In his Air War College speech, Secretary Gates claimed that "an unconventional era of warfare requires unconventional thinkers" (see "Remarks to Air War College," above). *America's Defense Meltdown* succeeds as a repository of unconventional ideas in Colonel Boyd's tradition. Its recommendations, which address Army, Marine Corps, Navy, and Air Force issues, are worth due consideration in the budget battles ahead if only for their power to stimulate debate that will eventually lead to workable solutions for today's defense challenges.

1st Lt Michael J. Arth, USAF
Cannon AFB, New Mexico

Missile Contagion: **Cruise Missile Proliferation and the Threat to International Security** by Dennis M. Gormley. Praeger Security International (http://www.praeger.com/PSI), 88 Post Road West, Westport, Connecticut 06881, 2008, 272 pages, $54.95 (hardcover), ISBN 978-0-275-99836-3.

A leading expert on cruise missile proliferation, Dennis Gormley has written *Missile Contagion*, a highly readable volume that presents clearly and concisely his concern that cruise missiles are on the edge of becoming a primary threat to international stability. Gormley has considerable experience in this area. In fact, this book is his second exploration of the cruise missile—and it is more than just an update. Rather, it is a cry for the world to wake up and recognize the new menace.

Ballistic and cruise missiles date to World War II, the notorious V-1 and V-2 representing the earliest military iterations. At that time, the V-1, a primitive cruise missile, was slow, noisy, and easily destroyed. The V-2 ballistic missile, having longer range and greater speed, posed much more of a danger. Since World War II, the powers have focused on ballistic missile technology and have attempted to counter enemy ballistic technology. Finally, a semblance of defense seems to be developing. Problem solved.

In the 1980s, cruise missiles belonged only to Russia and the United States. In the first Iraq war, the United States handled Iraq's primitive cruise missiles readily. Between the two wars against Iraq, however, the technology blossomed and simplified, and the United States found itself defenseless against that country's cruise missiles in the second war.

Cruise missiles are small, fast, low-flying, retargetable, and nearly impossible for radar to detect, particularly when it is seeking high-flying ballistic missiles. The relatively simple technology costs considerably less than ballistics and defenses. Launched in large numbers, the missiles can overwhelm modern defenses, and they are easily outfitted to carry chemical or biological agents. They present a fearsome threat that the US government and others ignore, still treating them as low-risk export items.

While the United States busily negotiates treaties involving ballistic missiles and develops defenses against them, technology makes both the treaties and the defenses largely meaningless. The cruise missile offers a more immediate threat, and the technology is proliferating—in part due

to American absentmindedness, in part because America allows business to sell technology and provide technical expertise to nations that otherwise would only slowly develop the technology without major assistance.

Gormley says it's time to wake up. He documents his case by detailing the performance of cruise missiles and defenses against them in the two Iraq wars, citing the characteristics by model and nation, and dealing with the geopolitical rivalries in Asia and the Middle East. He even talks of the Bush Doctrine of preemption as a green light to regional rivals as well as to countries such as North Korea who represent a potential threat to the United States. In less than a decade after the invasion of Iraq, already Pakistan, India, China, Japan, North Korea, Israel, and Iran are busily developing cruise missile capabilities.

Because of the ongoing concern about missile proliferation and because the situation changes rapidly, Gormley is developing a Web site to offer current information after the release of the paperback version of this work (see http://missilecontagion.com/Missile/Home.html). In the meantime, the hardcover edition of *Missile Contagion* will provide a sufficient primer on the danger that widespread ownership of cruise missiles presents.

Dr. John H. Barnhill
Houston, Texas

Information Strategy and Warfare: A Guide to Theory and Practice edited by John Arquilla and Douglas A. Borer. Routledge (http://www.routledge.com/), 270 Madison Avenue, New York, New York 10016, 2007, 272 pages, $150.00 (hardcover), ISBN 978-0-415-77124-5; 2009, 254 pages, $39.95 (softcover), ISBN 978-0-415-54514-3.

Information Strategy and Warfare includes nine essays by 10 authors, most of whom have a connection to the Naval Postgraduate School in Monterey, California. Divided into two halves, the book first assumes a conceptual point of view and then examines "prescriptive, policy-oriented ways to improve American information strategy" (p. 11). Further, it explores three themes: (1) "the rise of the information domain itself and information strategy's emergence as an equal partner alongside traditional military strategy" (pp. 1–2); (2) "the notion that an undue focus on technology will leave one wandering in a labyrinth" (p. 2); and (3) "the broad, amorphous realm of what has been called 'information operations' " (p. 2).

Chapter 1, "The Rhetoric of Terror," takes issue with the use of the war metaphor with respect to combating terrorism. Authors Frank J. Barrett and Theodore R. Sarbin argue that framing the issue as a "war on terror" filters out important distinctions and possibly effective strategies. In a key passage, they note that "one of the consequences of framing the struggle against terrorism as war and the depiction of terrorists as evil is that it might obfuscate efforts to understand the conditions that have given rise to terrorist activities" (p. 25).

In chapter 2, "Al-Qaeda and Its Affiliates," David Ronfeldt attempts to reframe the understanding of al Qaeda as more a manifestation of tribalism than of extremist religion. He argues that under such societies, maximizing honor is more important than power or profit.

"Winning Hearts and Minds," the third chapter, identifies nine centers of gravity for social-influence campaigns, offering richly illustrated examples of each. Anthony R. Pratkanis concludes his essay by introducing and explaining 19 influence tactics used in war and conflict.

Chapter 4, "Jihadi Information Strategy," explores the idea that "the relative success [that al Qaeda has] enjoyed despite the unpopularity of [its] view of what constitutes a proper Muslim society can be attributed largely to [an] innovative and nimble information strategy" (p. 86). It argues that, in spite of the organization's popularity for confronting the West, "al-Qaeda faces structural-ideological limits to its power" (p. 86) that will restrict its influence to a small minority of Muslim adherents. Author Glenn E. Robinson shows how jihadist elements reinterpret Islamic history to meet their ideological and power needs, such as the reinterpretation of the idea of *jahiliyya* (historically referring to Arab societies before Mohammed) to mean any society that rules today through non-Islamic means.

Beginning the second half of the book, the fifth chapter, "Reorganizing for Public Diplomacy," focuses on policy responses. It chronicles the poor state of public diplomacy in the United States and explains how it could be improved. The author, Carnes Lord, roundly criticizes the failure of the US Department of State to accept the mantle as leader in public diplomacy.

Chapter 6, "The One Percent Solution," by Barton Whaley, addresses military deception,

using quantitative data from several conflicts to assess the costs and benefits of different actions. Whaley concludes that "deception is worth the cost and effort in almost all situations" (p. 154).

In chapter 7, "Strategy and Psychological Operations," Hy S. Rothstein assesses the changing role of psychological operations amidst the new environment of terrorism, "shock and awe," and network-centric warfare.

In "Assessing the Computer Network Operations Threat of Foreign Countries," chapter 8, Dorothy E. Denning argues the need for "sound assessments of vulnerabilities in critical infrastructures and how risks can be mitigated" (p. 188). She examines, for foreign countries, whether network attack operations were "tolerated, encouraged, or even supported" on behalf of the host government (p. 194). Furthermore, Denning looks in depth at the capabilities of Iran and North Korea for computer network operations, based on recent student research at the Naval Postgraduate School.

In chapter 9, "Blogs and Military Information Strategy," James Kinniburgh and Dorothy Denning explore "the possibility of incorporating blogs and blogging into military information strategy, primarily as a tool for influence but also for gathering intelligence" (p. 212). They also review different methods for measuring the reach and influence of blogs.

As evidenced by this brief synopsis, the various chapters are somewhat diffuse. Although each brings an important component to the overall discussion of the book's central subject—information strategy and warfare—the collection would benefit from tighter focusing. The division of the book into halves, first examining concepts and then policy responses, helps alleviate some of the lack of focus. However, the three themes, identified above and in the introduction to the book, do not always come through clearly in each of the essays. One might expect this problem in a collection of essays about a broad subject, but the editors could have done more to ensure greater cohesion.

By necessity, the chapters avoid any use of classified material, but one wonders, given the nature of the subject matter, whether the contributors could reasonably address it in any significant way without the use of such sources. Moreover, because of the classified status of many information systems used by the defense community (e.g., the Secret Internet Protocol Router Network [SIPRNET] and the Joint Worldwide Intelligence Communications System [JWICS]), how thorough can a study of information operations be without assessing the vulnerability of such systems vis-à-vis the conventional Internet?

In the "Conclusion," Douglas Borer writes, "Harnessing the power of information in terms of desired outcomes is much more of an abstract art than it is a predictive science" (p. 237)—a true statement. In spite of its flaws, *Information Strategy and Warfare* does offer some sound advice and direction to the practitioners of that very art.

Dr. Clark Capshaw
Alexandria, Virginia

Vietnam: The History of an Unwinnable War, 1945–1975 by John Prados. University Press of Kansas (http://www.kansaspress.ku.edu), 2502 Westbrooke Circle, Lawrence, Kansas 66045-4444, 2009, 704 pages, $34.95 (hardcover), ISBN 978-0-7006-1634-3.

John Prados, a senior fellow of the National Security Archive at George Washington University, has produced the most comprehensive, authoritative, and readable single-volume narrative history of the American war in Vietnam yet seen. Benefiting from many recently declassified documents and presidential tapes in the United States, as well as significant foreign-source documentation, Prados brilliantly draws together what he calls a "*unified field theory* . . . [that] attempts to weave an account of both action and context that includes all necessary elements" (italics in original, p. xiii). The result is a narrative history of remarkable scope and considerable depth that weaves together military threads with political, social, economic, and foreign policy threads, forming a policy envelope that "narrowed over time due to developments in all those fields" (p. xi). This ever-more limited range of potential policy choices for the United States in Vietnam essentially made the war unwinnable. In a very real sense, Prados demonstrates the inconvenient yet fundamental truth of the Clausewitzian dictum about the relationship of war and politics.

He makes very clear in a three-page "Note to the Reader" (p. xxi) that he writes from a strong antiwar point of view and takes pains to discuss how, as an Army officer's son who wanted to attend West Point, he came to that perspective.

Such candor is very refreshing and highly unusual even though all historians write from a definite point of view (whether they admit it or not). As a college student in the 1970s, he became deeply involved in the antiwar movement and helped the Vietnam Veterans against the War (even though he was not a veteran) as they organized demonstrations during the Nixon administration. In the narrative discussing the antiwar demonstrations of the 1970s, he notes his roles in several, sometimes lengthy, insertions set off from the main body of his discussion by italic type (pp. 426, 476–80, 496–503, and 514–16). Some readers may think that Prados gives too much credit to the antiwar movement for forcing the Nixon administration to bring an end to American participation in the war. But this reviewer—a Vietnam vet from the mid-1960s who witnessed the near chaos in the United States in the early 1970s—thinks that, if anything, Prados undersells the influence of the movement.

Given his theme of an "unwinnable war," it is only natural that the author not shy away from confronting revisionist historians (e.g., Mark Moyar) who claim that the United States had virtually won the war at various points but that we either didn't recognize or take advantage of those situations. The reader should be sure to check the endnotes, for it is there (rather than in the basic text) that Prados directly takes on the revisionists.

As one would expect of a historian and senior fellow at George Washington University's National Security Archive, Prados has heavily documented his work with 60 pages of often very illuminating endnotes followed by an 18-page bibliographic essay. Anyone who reads the text without referring to the endnotes will miss many clarifying parts of the story. (As a personal aside, the importance of the endnotes to this narrative history argues in favor of publishers using footnotes rather than endnotes. Readers would vastly prefer having explanatory footnotes readily available on the same page to searching for endnotes at the back of the volume.)

Prados has produced a wonderful one-volume history that makes a significant contribution to the literature of the Vietnam War. Clearly, *Vietnam: The History of an Unwinnable War, 1945–1975* is the most comprehensive single-volume history of the war yet published. The author's acknowledged point of view may irk some readers, but he is candid about his views and argues them well, using excellent evidence. Frankly, if I could have only one volume about the Vietnam War, Prados's book would be it.

Col Dennis M. Drew, USAF, Retired
Professor Emeritus
School of Advanced Air and Space Studies, Air University
Montgomery, Alabama

Night Fighters: Luftwaffe and RAF Air Combat over Europe, 1939–1945 by Colin D. Heaton and Anne-Marie Lewis. Naval Institute Press (http://www.usni.org), 291 Wood Road, Annapolis, Maryland 21402, 2008, 224 pages, $27.95 (hardcover), ISBN 978-1-59114-360-4.

During World War II, the British nighttime aerial bombardment of Germany and occupied Europe, against a determined and skillful defense, represented a distinct campaign of great scope and sacrifice. At odds with the American daylight precision bombing strategy, the Royal Air Force (RAF) steadfastly pursued night attacks from 1939 to 1945 at a loss of "nearly 10,000 bombers and over 55,000 airmen killed, wounded, or captured" (p. 13). In *Night Fighters*, Colin Heaton and Anne-Marie Lewis—a photographer, researcher, and digital image specialist—recount the history of the ever-evolving tactics and technology of this air war, primarily from the perspective of the Luftwaffe fighter forces and RAF Bomber Command.

The book's hallmark is tracing the evolution of night-fighting tactics, doctrine, and technology across the course of the war. Over the years that this campaign persisted, a deadly balancing act played out between belligerents as first one side, and then the other, adapted and became superior with deadly innovation in "the greatest technological arms race in history" (p. 28). Heaton painstakingly studied and conducted face-to-face interviews with many of the air war leaders and noble night-fighter pilots such as Wolfgang Falck, Hajo Herrmann, and Hans-Joachim Jabs. In this aspect, Heaton (a professor at the American Military University, a major online institution) shows obvious admiration for German aviators' valor in the air and engineers' ingenuity in the laboratory.

Night Fighters asserts that the tactics and technology of this battle "underwent a greater revolution . . . than in any other area of operations in any preceding era in history" with the exception

of the nuclear age (p. 78). Heaton traces postwar advances in fly-by-wire technology, all types of radar, microwave ovens, transistors, ejection seats, shatterproof glass, motion sensors, and rocket and jet engines "to World War II and mostly to the night war in Europe" (p. 137).

Heaton is as critical of British leadership and tactics as he is full of admiration for the valor of the Luftwaffe pilots. The book occasionally becomes sidetracked from the subject of air-to-air combat to examine the failures and savagery of RAF Bomber Command's nighttime area attacks on German cities versus the daylight precision bombing favored by the US Army Air Forces. It further touches on the desperate lot of the British bomber aircrews, their loss rates, the misunderstanding associated with treating woes stemming from low morale, and its connection to faulty leadership: "The class-conscious British hierarchy did little to instill faith in one's superiors, who may have been promoted through family connections or had the privilege of an upper-class education" (p. 105). Conversely, Heaton finds fault with a less-than-competent Nazi hierarchy that denies critical resources and support necessary for the fighter force to prevail. In the Germans' defeat, he finds that under their high command "it was as much an internal implosion as an external eradication" (p. 138).

Although the author gives due credit to the skill of the fielded Luftwaffe fighter force, *Night Fighters* is too small a volume (140 pages of narrative) to document the many conclusions that distract it from its thesis. The book's strength lies in its colorful and energetic descriptions of nighttime air-to-air combat in World War II Europe, but its shortcomings are its expansive findings in tangential but related fields of strategy, leadership, and aircrew morale. *Night Fighters* gives serious attention to the worthy and underrepresented field of study involving how this arms race was fought and won in the night skies of World War II Europe. Airmen today would do well to heed the lessons of their predecessors—how they adapted and where they came up short.

Col John S. Chilstrom, USAF, Retired
Austin, Texas

Effects-Based Operations: Applying Network Centric Warfare in Peace, Crisis, and War by Edward A. Smith. Command and Control Research Program Publications (http://www.dodccrp.org), c/o Evidence Based Research, 1595 Spring Hill Road, Suite 250, Vienna, Virginia 22182-2216, 2002, 558 pages. Available free from http://www.dodccrp.org/files/Smith_EBO.PDF.

Effects-Based Operations is the third entry in the Command and Control Research Program's series of books that addresses information age transformation. David S. Alberts—former director of research for the Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence—notes that this study "speaks directly to what we are trying to accomplish on the 'fields of battle' and argues for changes in the way we decide what effects we want to achieve and what means we will use to achieve them" (p. ix).

Author Edward Smith—a retired captain with 30 years of Navy experience, holding a doctorate in international relations—begins by defining effects-based operations (EBO) and the need for them: "[they] are coordinated sets of actions directed at shaping the behavior of friends, foes, and neutrals in peace, crisis, and war" (p. xiv). After systematically describing an effects-based concept of operations that deals with an enemy who uses asymmetric or symmetric (or both) tactics, he rationalizes the need for EBO by stating that in a post-9/11 world, America realizes that the enemy is no longer the obvious uniformed military posing a threat, as the Russians did during the Cold War. Rather, we now face an asymmetric foe, and that fact is driving an American technological revolution in sensors, information technology, and weapons, providing new tools and operational models for implementing EBO in a network-centric approach to warfare. Not just another study of EBO, this book offers an intelligent, thoroughly researched discussion of the modern applications of this much-debated approach.

Numerous illustrations drive home important concepts of warfare, especially the systematic description of the three domains of conflict—cognitive, information, and physical—derived from the observe, orient, decide, act loop discussed in previous Command and Control Research Program publications. The narrative effectively walks the reader through each domain, referring to illustrations and building a presentation of an EBO concept of operations that goes far beyond a mere definition and a few historical examples.

Speaking of such examples, they complement the discussion rather than overwhelm the reader. Dr. Smith contrasts the symmetric, attrition-based world wars and the American Civil war with asymmetric aspects of the Cold War and the war on terror. For instance, in a meticulous analysis of the major components of Attain Document—a series of operations launched by the US Navy off Libya in 1985 in response to anti-American terrorism perpetrated by Hizballah and the Abu Nidal organization—the author demonstrates the success of an effects-based approach from the tactical to the strategic levels of war.

Although the book makes a compelling argument for the continued application and evolution of EBO, it treats network-centric warfare only sporadically throughout the text, not giving it significant attention until the final chapter. Nonetheless, the author has a knack for making complex material understandable, thereby promoting a reading experience that feels like participating in a fascinating "master class."

Effects-Based Operations, which challenges current thinking on the operational art of war and provides insight into conducting operations more efficiently and effectively, is relevant not only to the Air Force but also to the entire defense community. I highly recommend it, especially to individuals who serve at command and control nodes or at the operational or strategic levels. Dr. Smith sought to portray "how network-centric operations and effects-based operations fit together, and how they complement one another in meeting the needs of the new security environment" (p. xxii). Let there be no mistake, he has achieved his desired effect.

Capt Albert C. Harris III, USAF
Vandenberg AFB, California

Road to Mach 10: Lessons Learned from the X-43A Flight Research Program by Curtis Peebles. American Institute of Aeronautics and Astronautics (http://www.aiaa.org), 1801 Alexander Bell Drive, Reston, Virginia 20191-4344, 2008, 250 pages, $39.95 (softcover), ISBN 978-1-56347-932-8.

At hypersonic speeds, defined as Mach 5 or higher, the compressive heating generated by a vehicle as it passes though the atmosphere is so intense that the air itself undergoes chemical changes. Such heating would destroy turbine or ramjet engines constructed of any known material. Although a variety of rocket-propelled vehicles have flown at hypersonic speeds (e.g., ballistic missile reentry vehicles, the X-15, and the space shuttle), no air-breathing vehicle until the X-43A has proved capable of sustained hypersonic flight.

At least in theory, the scramjet (supersonic combustion ramjet) can serve as a hypersonic jet engine. Conceived more than 50 years ago, it differs from the ramjet in that the latter's inlet slows the air down to subsonic speed, while the scramjet inlet only decelerates the flow to supersonic speeds, which reduces heating. The scramjet introduced many complications, however, especially the problem of sustaining combustion in a supersonic flow.

After decades of analysis, wind tunnel tests, and concepts for flight research projects that never reached fruition, the National Aeronautics and Space Administration (NASA) began work on the Hyper-X project in 1996. Hyper-X consisted of the X-43A (a 12-foot-long unmanned research vehicle with a scramjet engine) and a rocket booster to push the X-43A to hypersonic speeds at an altitude of approximately 100,000 feet. At that point, the vehicle would separate from the booster and start its scramjet engine. A B-52 bomber lifted the entire stack, releasing it over the Pacific Ocean off the coast of California.

Curtis Peebles drew on his unique vantage point as NASA project historian to write this book about the Hyper-X. Based on both internal and published documents, interviews with project participants, and the author's own observations, *Road to Mach 10* offers an insider's detailed view of one of the most exciting flight research projects in several decades. As befits a book published by an organization of aerospace engineering professionals, this one is highly technical in places. Although he has not written an engineering textbook, Peebles assumes that the reader has a good background in the full range of aerospace technologies. If readers have difficulty with such sentences as "The computational-fluid-dynamics data were used to quantify the ground-to-flight scaling and unsteady-flow phenomena during the dynamic separation" (p. 64), then they may want to pass by this book.

Those undaunted by the required level of technical knowledge are rewarded with a detailed but readable story that begins with a background of scramjet research and continues to Hyper-X design, manufacturing, integration and checkout, and flight operations. The first flight

tumbled out of control shortly after release from the B-52, but the second and third flights successfully demonstrated scramjet-powered flight at Mach 6.83 and 9.68, respectively. Peebles offers an excellent description of all the missions as well as the mishap investigation.

The book includes numerous good photographs; unfortunately, they are reproduced in black and white rather than color. More significantly, it omits line drawings of the vehicles and their systems. Specifically, at several points, the book describes intricate mechanisms, but the absence of supporting illustrations makes it difficult to visualize the systems.

Quibbles about illustrations aside, *Road to Mach 10* is an outstanding recounting of an exciting and notable project. Individuals with a professional interest in modern flight research at the leading edge of technology will benefit greatly from reading it.

Kenneth P. Katz
Longmeadow, Massachusetts

Robots in Space: Technology, Evolution, and Interplanetary Travel by Roger D. Launius and Howard E. McCurdy. Johns Hopkins University Press (http://www.press.jhu.edu/), 2715 North Charles Street, Baltimore, Maryland 21218-4363, 2008, 336 pages, $35.00 (hardcover), ISBN 978-0-8018-8708-6.

Roger Launius, former chief historian of the National Aeronautics and Space Administration (NASA), and Howard E. McCurdy, a professor at American University, have produced a remarkably well-written and lucid book with a catchy, if misleading, title. It is not a technical manual or catalogue of the various robots that humans have sent to orbit Earth, prowl extraterrestrial landscapes, or pierce the heavens. Rather, the book is actually about the ongoing debate within the American civil space agency between proponents of human spaceflight and those who advocate robotic or "unmanned" spaceflight. And what a debate it is—one that has spanned more than five decades and that has ranged from boardrooms at NASA to backrooms on Capitol Hill to the living rooms of the general public!

The authors skillfully lead us through an eminently readable and entertaining history of the early "space race" and the nascent space program (although they focus on broad brushstrokes, not a detailed account of each space mission), including changes in the roles of humans and robots over the past 50 years of spaceflight. Launius and McCurdy's articulate narrative examines the paradigm that effectively dominated the civil space agency for the first few decades of its existence, the dream of human spaceflight, and human interplanetary colonization.

To some extent, advocates of human spaceflight were simply lucky in their timing: As the authors point out, "The 'space age' opened a few decades after the closing of what commentators termed the 'heroic era' of earthly exploration" (p. 100). The explorers' exploits inspired more than a generation of science fiction writers, who "primed the pump" with wild tales of space exploration and overtly utopian depictions of life on the frontier. And the American public remained in awe of the technological marvels of the atomic age. Finally, escalating Cold War tension gave impetus to the national space race, captured the attention of the American public, "energized the creation of a larger coalition that forced policy change," and created a "pro-space majority" made up of "pro-space true believers," scientists, senior military leaders, businessmen, industrial engineers, and politicians "hoping to benefit from the symbolic resonances of the space race" (p. 41). If ever there was a moment when all the stars aligned to create a zeitgeist favoring a bold, new direction for American "Big Science" and the space program, this was it. And so it was that proponents of human spaceflight won the debate, and robotic missions received little priority and negligible funding.

Human spaceflight, however, reached its zenith with the Apollo moon landing in 1969. Launius and McCurdy compare the competition between human and robotic spaceflights to the fable of the tortoise and the hare. The hare dashed to an early lead in the race but then took a break, only to be overtaken by the stolidly plodding tortoise. Similarly, human spaceflight raced ahead to an impressive lead with the moon missions but then stalled; in the decades since, human spaceflight has failed to develop long-term, cost-effective solutions to the numerous problems associated with keeping humans alive in the hostile environment of space. Robotic spaceflight, meanwhile, made steady, incremental gains as robotic technology improved.

The exploration of Mars offers a perfect example of this stark contrast: despite the exhortations of several presidents to begin a manned mission to Mars, the government has yet to pony

up the (estimated) $500 billion that such a mission would require. Yet for a fraction of that cost ($820 million), NASA has had two rovers, *Spirit* and *Opportunity*, exploring Mars in more or less continuous operation since 2004. Since 1972, human spaceflight has been limited to the aging fleet of five space shuttles, which have flown a total of 113 missions (two of which were catastrophic failures resulting in the deaths of 14 people), have cost $40 billion (adjusted for inflation) to develop and build, and have flown only to near-Earth orbit at a cost of roughly $1.5 billion per flight. In contrast, the United States has fielded scores of more economical robotic spaceflight missions, including orbiters and probes of the moon, sun, various asteroids and comets, all of the major planets in our solar system (even including a mission to the planetoid Pluto, expected to arrive in 2015), and beyond; moreover, it has established a complex Global Positioning System, an impressive array of sophisticated space telescopes, and more.

Launius and McCurdy contend, however, that the competition between robotic and human spaceflight is ultimately a "false dichotomy" (p. xi). The correct paradigm involves not humans versus robots but humans and robots working together. Indeed, the book's thesis takes this thought even further: "given enough time, human and robotic characteristics tend to merge" (p. 254). The timeline contemplated in this metamorphosis spans centuries, not decades. This may be one of the strongest aspects of the book: although it explicitly concerns the *civil* space agency, eschewing discussion of military space programs (thus appearing to have limited utility for a uniformed audience), the discussion of the merging of human and robotic characteristics will likely interest military readers. The authors devote the concluding two chapters to exploring ideas that the future of space travel belongs to "transhumanist" and "postbiological" entities that blend human and robotic capabilities. When earthlings eventually get around to colonizing other worlds, those beings will likely take the form of "evolved" or genetically engineered humans so changed that they bear minimal resemblance to their forebears—or they may not be biological organisms at all.

Capt Bryce G. Poole, USAF
Minot AFB, North Dakota

Criminal-States and Criminal-Soldiers edited by Robert J. Bunker. Routledge (http://www.routledge.com/), 270 Madison Avenue, New York, New York 10016, 2008, 322 pages, $150.00 (hardcover), ISBN 978-0-415-45765-1; $49.95 (softcover), ISBN 978-0-415-46206-8.

Criminal-States and Criminal-Soldiers is a collection of essays intended to reflect the changing face of international relations. Specifically, Robert Bunker—editor and contributor—offers selections that highlight problems in the context of a "state" related to criminal nonstate actors. Bunker organizes the book according to three clustered topics: (1) "Theory and Law" discusses the status of the Westphalian state in the current global context and expounds the new types of polities emerging; (2) "Criminal-States" loosely links Clausewitzian thought as it relates to conflict with rogue states and gangs (additionally, the operation of selected criminal-states receives attention); and (3) "Criminal-Soldiers" looks at gangs as nonstate actors, the nature of international crime, and the meaning of some crimes from an international perspective (e.g., the symbolic meaning of beheadings).

Unfortunately, this work suffers from three problems, beginning with the timeliness of the publishing. The book's liner notes describe it as "cutting edge." Perhaps so in 2008, but its perishable information is now three years stale. Granted, it takes time to put material together, print copies, and distribute them. But this seems to be a persistent issue with these types of current-events books: cutting-edge information in 2008 no longer dazzles our understanding amid a new US administration, a changed international setting, an entrenched recession, and so forth. Second, the contributors offer essays written at very different "levels"— some scholarly, others (e.g., "The Use of Beheadings by Fundamentalist Islam") reading like slide notes for an intelligence briefing. (Indeed, one can almost imagine the slides to go along with the text.) Third, and mostly a minor annoyance, is the quality of the publication. For some reason, the pages of the book are sprinkled with spelling errors that seem not so much misspellings as errors on the part of the spell-checking software.

The essay "Does Clausewitz Apply to Criminal-States and Gangs?" stands as the gem of the book. Clashing with both John Keegan's and Martin van Creveld's opinions that Clausewitz has a reduced place in contemporary thinking, the author demonstrates that nonstate actors

using violence do indeed employ war (read as acts of violent terrorism, crime, etc.) as policy. Despite criminal states and gangs lacking the status of a legitimate polity, they can—and in some cases do—share features with the commonly accepted idea of a state. In other words, criminal states, gangs, and warlords exercise sovereignty over territory, control borders, and interact with other state or nonstate actors. These "state-like" activities, including the use of violence as policy, tie them directly to Clausewitz's thinking. Clausewitz can apply at the microlevel, such as a gang that controls turf inside a city. To restrict Clausewitz to large-scale conflict removes the idea of a nontraditional actor using violence as a matter of policy. This especially comes to light when Marx and, in turn, Lenin and Mao give credence to Clausewitzian thinking in their revolutionary theorizing.

Criminal-States and Criminal-Soldiers is a marginal work. The unevenness of the essays detracts from its overall quality. Readers interested in international relations or nonstate actors might find the book appealing. However, given the abundance of materials on the topics it addresses, one could just as easily browse for better information elsewhere.

David J. Schepp
RAF Lakenheath, United Kingdom

The Brenner Assignment: The Untold Story of the Most Daring Spy Mission of World War II by Patrick K. O'Donnell. Da Capo Press (http://www.perseusbooksgroup.com/dacapo/home.jsp), Eleven Cambridge Center, Cambridge, Massachusetts 02142, 2008, 304 pages, $25.00 (hardcover), ISBN 978-0-306-81577-5; 2009, 320 pages, $14.95 (softcover), ISBN 978-0-306-81841-7.

On 2 August 1944, in the dark, silent skies over the jagged Alps of northern Italy, Capt Stephen Hall, a daring young American special forces operative, parachutes into Nazi territory. Hall's mission: to seek and destroy targets of opportunity and degrade or disable key routes of transportation that the German army would soon rely on for its pending retreat from Allied forces steadily advancing northward from Rome. Capt Howard Chappell and his team of demolition and espionage experts would follow in his path just weeks later. Their dramatic efforts to rendezvous with Hall resulted in one of the most fascinating real-life adventure stories to come out of World War II. This is an intriguing tale of the intertwining destinies and ultimate fates, both tragic and heroic, of two young officers as they attempt to seal the Germans' escape route through the Brenner Pass.

Skilled author Patrick O'Donnell masterfully tells the story of the brief and adventurous military careers of Hall and Chappell, energetically weaving historical fact into an exciting, page-turning drama that reads like the best of adventure fiction. In 1944 both officers are recruited by the clandestine Office of Strategic Services (OSS), the World War II precursor to the current US Central Intelligence Agency. Hall, a creatively energetic and possibly somewhat introverted young officer, submits to the OSS his novel idea of using US secret operatives to demolish key railroad tunnels in the Italian Alps, essentially bottlenecking the German army into the mountain valleys as easy targets for Allied airpower. Intrigued by his proposal, the OSS recruits and trains Hall for this very mission, and within months he is covertly roaming the Italian Alps, evading the ruthless searches of thousands of German troops, and systematically destroying targets of opportunity as he postures for the ultimate mission of closing the Brenner Pass.

Of a distinctly different cut is Captain Chappell, a daring, almost reckless, self-sacrificing warrior and a naturally charismatic leader. As commander of a small band of special operations troops, Chappell and his team are covertly inserted into northern Italy to join Hall in his mission to bring German troop movements to a halt. The fighters of various Italian resistance factions who facilitate Chappell's team challenge his diplomatic skills as well as his patience as he seeks to meet up with Hall amidst a maze of some of the world's most tortuous mountain terrain while eluding the gaze of the ever-vigilant German soldiers.

The fast-paced action and serial combat engagements experienced by these men almost obscure the underlying strategies and counterstrategies of insurgency warfare at play. Hall and Chappell's nemesis, Nazi major August Schiffer, whose area of responsibility coincides with the Americans' primary target, the Brenner Pass, employs ruthless and persistent means to capture both Italian partisans and any foreign operatives who might be assisting them. Schiffer and his Nazi forces rely on intimidation and torture in their efforts to coerce the Italian civilians not

only to abandon their support of the partisans and Allied agents known to be operating in the area, but also to turn them over to the German forces. Schiffer also conducts persistent and highly effective counterinsurgent sweeps, called *rastrellamentos*, through the mountainous wilderness, netting several of Chappell's men—and Chappell himself.

Filled with firefights, captures and escapes, close calls, dangerous liaisons, stealthy airdrops, and coded radio communications, *The Brenner Assignment* is a thrilling read. The intricate depiction of the converging fates of Hall and Chappell, the immensity of the wilderness setting, the complexities of the political and military interactions, and the tenacity of the German antagonists, all make this book highly entertaining. Although some of the subtle concepts and themes throughout could serve as intriguing, perhaps unsettling, parallels between the Nazi counterinsurgent efforts in the desperate, waning days of World War II and the US efforts against enemies in Iraq and Afghanistan, O'Donnell in no way attempts to present or propose strategies or tactics for current operations.

The Brenner Assignment reads like an adventure novel. The fact that one is reading about the lives, heroics, and tragic deaths of real Soldiers can sometimes be overlooked amidst the heart-pounding action of rapid-fire gunfights, middle-of-the-night bridge demolitions, and edge-of-your-seat escapes under the enemy's very nose. Thoroughly researched, the book is rich in fact and soundly credible. I most definitely recommend *The Brenner Assignment* to readers interested in the early days of US special operations, especially from the perspective of the individual operator, and to anyone looking for a great action story. This true tale of parallel lives, both tragic and heroic, contending with intense combat and the demands of extreme physical exertion in a harsh environment is a solid read and worth the time.

Lt Col Thomas Swaim, USAF
US Air Force Academy, Colorado

Gods of Tin: The Flying Years by James Salter, edited and introduced by Jessica Benton and William Benton. Counterpoint (http://www.counterpointpress.com/), 1919 Fifth Street, Berkeley, California 94710, 2004, 150 pages, $14.00 (softcover), ISBN 978-1-59376-079-3.

James Salter's *Gods of Tin* is a compilation of two works of fiction (*The Hunters* [Harper, 1956] and *Cassada* [Counterpoint, 2000]), a memoir (*Burning the Days* [Picador, 2007]), and a personal journal—all by the author. Relating Salter's experiences as a Korean War–era F-86 "Sabre" fighter pilot (with one MiG-15 kill), the book traces both his and his fictional characters' various flying assignments around the globe. Editors Jessica and William Benton weave the four sources together chronologically, separating them with artistic symbols and dividing the narrative into four sections to encapsulate the author's major periods of flying: the beginning (cadet pilot training), the post–World War II Air Force, the Korean War, and post–Korean War Europe.

Written by a combat-proven aviator, which gives the book a measure of validity, the flying passages are vivid. At times Salter fills them with metaphorical detail that reads like poetry, drawing the reader into the cockpit: "Gathering speed, they moved down the runway together. It was the highest moment of confidence forever renewed upon taking off, the soaring of spirit" (p. 98). At other times, he writes in a piercing, staccato style, bringing the reader into the split-second decision-making process of fighting MiGs over Korea: "*24 June 1952*. Left the briefing nervous. Dressed, flight briefing. Finally we were off. North in ominous silence" (italics in original) (p. 99). Although this switching of styles demonstrates the author's skill as a writer, it fails to produce a smooth, uniform piece of literature—the result of cutting and pasting excerpts from multiple books.

Since two of the book's sources are novels, I would classify *Gods of Tin* as fiction. Disappointingly, it's challenging at best—and close to impossible at times—to distinguish between the fictional and nonfictional passages. For readers hoping to discover the exhilaration and occasional terror of flight, this issue won't matter. For those looking for a more autobiographical work, the book falls flat. Read individually, the excerpts are interesting—often engrossing; however, character development often suffers at the hands of the editors' cutting and pasting.

Without a doubt, James Salter is a talented writer. Nevertheless, *Gods of Tin* is far from being his best effort. In fact, it appears to be more the work of the editors who cobbled it together. Readers who prefer an engaging story about the life-and-death struggles over the jet-filled skies of Korea should read *The Hunters.* Even though it's a relatively quick and easy read, *Gods of Tin*

misses the mark and certainly does not live up to the quality of Salter's other works.

Lt Col Daniel J. Simonsen, USAF, Retired
Ruston, Louisiana

War Wings: Films of the First Air War: A Guide to the World War I Aviation Documentary Motion Pictures Held by the U.S. National Archives by Phillip W. Stewart. PMS Press (http://www.pmspress.com), P.O. Box 1496, Crestview, Florida 32536, 2008, 218 pages, $24.95 (softcover), ISBN 978-0-9793243-4-5.

I should make clear up front what this book is and what it is not. Phillip W. Stewart's *War Wings: Films of the First Air War* is not an examination of how World War I aviation films were made, nor is it a study of their meaning or effectiveness. Rather, it is a reference work that catalogues and documents the National Archives and Records Administration's (NARA) holdings of World War I aviation films produced during the Great War. As the author notes in his introduction, the book deals with what he considers a "forgotten, or at best, rarely used resource of information for those of us who are keenly interested in this period of aviation history: the motion picture" (p. xiii). Noting that many belligerents shot millions of feet of film during the war, Stewart sought to document the NARA's aviation holdings, about 95 percent of which were filmed by the US Army Signal Corps.

The work's three general sections encompass six chapters. The first section briefly examines "combat photography" of the US Army and Navy. The brief introduction, a reprint of historian K. Jack Bauer's introduction to the book *List of World War I Signal Corps Films* (1957), is a dated—though still useful—overview of the subject. The second section examines what the author terms "A-List" films (p. xv)—those concerned primarily with aviation. The third section examines "B-List" films (p. xvi)—those that focus on other topics but that include brief aviation scenes. The author also offers three appendices: an alphabetical listing of the 71 A-List films in the NARA collection, a basic chronology of World War I aviation, and a reprint of an essay written in 1919 by Brig Gen William "Billy" Mitchell, in which the outspoken aviator describes the American Air Service in World War I.

Of course, the heart of the book is the 71 A-List films. Clearly, the author has spent countless hours in the National Archives painstakingly examining every reel of every film. Indeed, the level of detail with which the author breaks down each film is impressive, as reflected by the following categories: "Training Airmen," "Building Aircraft," "Getting to France," "American Expeditionary Forces (AEF) in the Skies over France," "Combat Films of Other Nations," and "Films Shot after the Armistice." For each film, Stewart provides a brief description of the contents, length, and number of reels, followed by an exhaustive frame-by-frame description. Consider the following from a film about the artillery training centers at Valdahon and Saumur, France: "Taxi of a Caudron G.4; G.4 takes off; G.4 taxis; G.4 takes off; French troops man the balloon 'spider' and walk it" (p. 32). (Obviously, the book is not meant to be read from cover to cover.) Finally, the author sprinkles the work with stills taken from the films. Of varying quality, some of the photos are striking and probably have not been seen before.

From a reference standpoint, this impressive work would certainly prove useful to researchers, particularly those who can visit the National Archives to view the films, since the book would help them prepare and make the experience worthwhile. Furthermore, the author deserves praise for his research and for reminding us of the existence of some vastly underutilized primary source documents. Finally, readers interested in and knowledgeable about the Army Air Service during World War I should examine a copy of *War Wings: Films of the First Air War*. However, those who seek thoughtful study and critical analysis of the aerial campaigns during that war should look elsewhere.

Capt Gregory W. Ball, PhD, USAFR
Alexandria, Virginia